

containers. The bait stations trap the insects and the active ingredient disrupts their biochemical energy production, killing them in about 48-96 hours after ingestion. For a bait to be effective, it requires careful placement and must out-compete existing supplies of food.

Boric Acid

Boric acid, another chemical of lesser toxicity to humans, can be used to control roaches. Domestic users can purchase the dust form of the product which should be applied as a light coating. If the coating is too thick, the insect will simply avoid going in its path. The paste form is available to pest control operators for treatment of cracks and crevices.

Boric acid, a stomach action poison, is ingested while the insects clean themselves. Applied where the insects are likely to hide, it takes about 10 days to be effective. Boric acid may be effective for many years when treated areas are kept dry.

Diatomaceous Earth

Diatomaceous earth, a fine powder also known as silicon dioxide, consists of microorganisms found in the sea. As the insects crawl over the fine powder, their waxy outer protection is scratched, leaving them to dehydrate and die. For a week or so after the treatment, the dehydrating insects will search more actively for water. Therefore, do not be surprised if you see roaches more often after the treatment. Most roaches should be killed within two weeks of application. Diatomaceous earth is non-toxic to humans and pets and will remain active as long as it is kept dry.

Silica Aerogel

Products combining pyrethrin and silica aerogel are also available for the control of roaches. The pyrethrin component provides a quick knockdown of roaches while silica aerogel works like diatomaceous earth, causing the insects to slowly dehydrate and die.

Summary

- Use traps to determine the locations of roaches and to verify the effectiveness of treatments.
- Reduce access to food and water.
- Place garbage in sealed containers.
- Seal cracks and crevices where roaches are likely to hide.
- Screen vents and windows to prevent roaches from travelling from one apartment to the other.
- Use of pest control products without sanitation and physical means of control will not solve the roach problem.
- In an apartment building or other multi-unit dwelling, community effort is essential to ensure an effective cockroach management program.



Remember

Before Purchasing a Pesticide Product

- Identify the pest correctly.
- Use physical control methods and alternatives to pesticides.
- Read the label directions and safety precautions before buying the product. The label must include the name of the pest to be controlled and the treatment location (e.g., indoor, outdoor, garden uses, pet treatment).
- Purchase only the quantity of product needed for the treatment.
- Alternatively, you may choose to hire a licensed pest control operator.

When Using a Pesticide

- Carefully read all label instructions and precautions before using pesticides.
- Do not drink, eat or smoke while applying pesticides.
- Persons and pets should vacate the area during treatment. Cover or remove aquaria.

- If kitchen area is to be treated, cover or remove food, dishes and utensils.

After Handling a Pesticide

- Always wash your hands thoroughly after handling any pesticide product.
- Do not permit persons or pets to contact treated surfaces until residue has dried completely.
- Provide adequate ventilation of treated areas after use.
- Wipe clean all surfaces that comes in direct contact with food, such as counters, tables and stovetops, including indoor and outdoor surfaces.
- Always store pesticides out of reach of children and pets and away from food and beverages.

In Case of Accidental Poisoning

- Call a poison control centre immediately and seek medical attention.
- Take the pesticide container or label with you to the emergency facility or physician.
- Follow first aid statements on the label.
- In case of accidental poisoning of pets seek veterinary attention immediately.



When Disposing of Pesticides

Do not reuse empty pesticide containers. Wrap and dispose of in household garbage.

Unused or partially used pesticide products should be disposed of at provincially or municipally designated household hazardous waste disposal sites.

Use Common Sense

- These are general recommendations.
- Consult the label for specific instructions.
- When in doubt, contact a professional.



Pest Management Regulatory Agency
2720 Riverside Drive
Ottawa ON K1A 0K9

Pest Management Information Service

Telephone: 1-800-267-6315

From outside Canada: (613) 736-3799*

*Long distance charges apply.

Fax: (613) 736-3798

Internet: www.hc-sc.gc.ca/pmrz-arla

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Effective Control of Cockroaches



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For many apartment dwellers, cockroaches are a normal part of life, seen scurrying into the corners of the room when the lights are turned on late at night. The roach population thrives in areas where food, water and shelter are readily available.

Roach control therefore involves reduction or elimination of these components from the environment. Although it may seem impossible to completely eradicate cockroaches from your dwelling, you can always attain a certain level of control, so that very few of these insects are ever seen.

Cockroaches have changed very little in their 400 million years on earth. Because they evolved as scavengers of dead plant material, they prefer carbohydrates to proteins or fats. However, when they are hungry, they will feed on almost anything.

More than 3500 cockroach species exist worldwide including: the German cockroach, the Brown-banded cockroach, the Oriental cockroach, the American cockroach, the Smokybrown cockroach and the Wood cockroach. The German cockroach is the species most commonly found in North America.

Lifecycle

After the female has incubated the eggs for 20 to 28 days, she drops one to four egg cases (ootheca) containing 35 to 50 nymphs each. Over a period of 100 days the nymphs reach the adult stage, going through six to seven transformations called instars. However, the time required for each instar varies depending upon the temperature and relative humidity.

For more information on the lifecycle of cockroaches, please consult your public or university library.

Control

Roaches can be inadvertently brought into the home in the form of egg cases that have been laid in groceries, beer and soft drink cases, used appliances, rugs, furniture, etc. They are not always a sign of poor housekeeping. The homeowner must rely on intensive sanitation measures, physical modification of habitat and the use of pest control products to adequately control the cockroach. Note that pesticide use alone will not ensure successful control unless the habitat is physically modified first. Remember that pesticides treat only the symptoms rather than the cause of the infestation.

Focus efforts where roaches are most concentrated. Cockroaches like to squeeze into small cracks in which their back and underside make contact with both upper and lower surfaces. This explains the cockroach's preference for small, enclosed areas. They tend to occur in patches in a room, and are generally found in basements or first floor apartments. They prefer warm moist areas where food is readily available.

Sanitation

- ▶ Never leave sources of food or water exposed. Clean up spills immediately. Do not leave pet water and food out 24 hours a day. During the daytime, you can place your pet's dish in a plate filled with soapy water. Because soap has some insecticidal properties, roaches venturing into the water will be killed.
- ▶ Keep food in tightly sealed plastic or glass containers, rather than in paper or cardboard containers that the roaches can chew through.

▶ Regularly clean around and beneath appliances, sinks and other locations close to a food source where dark and/or humid conditions exist. A layer of accumulated grease behind a stove will allow several adult roaches to survive and reproduce. Empty drainage pans under refrigerators to eliminate this source of water for the roaches.

- ▶ Clean the kitchen thoroughly every day.
- ▶ Store garbage in sealed plastic containers and dispose of it daily.
- ▶ Do not allow dirty dishes to accumulate, especially overnight. If you do not have the time to wash them immediately, immerse them in a strong solution of detergent and water.
- ▶ Vacuum your home regularly to help remove food particles and insect egg masses.
- ▶ Wrap or insulate pipes that have excessive amounts of condensation, repair leaky faucets and pipes, ventilate bathrooms and dehumidify areas of excess moisture to reduce availability of water from these sources. Controlling humidity and increasing the light and air circulation in problem areas will help control infestations.

Physical Control

Traps

Traps allow you to monitor the location of roaches in your home so that you know where to concentrate your control efforts. Traps can also be used as a control tool. Sticky traps can be used to monitor roach populations and locations.



Use as many traps as possible to ensure the greatest success. The idea is to place various traps in the corners of rooms where roaches have been seen at night. To prepare your own traps, darken the inside of a quart-sized Mason jar by wrapping it in paper or painting the inside black; coat the inside of the jar with petroleum jelly to prevent the roaches from escaping; and place some food at the bottom (a piece of moist bread, beer, or bacon grease will do). Your trap now has all the assets

required to attract roaches. In the morning kill the roaches by drowning them in soapy water or place a lid on the jar and put it in the freezer for at least 24 hours (it may take up to a week to kill the roaches in the freezer).

Vacuuming

If you vacuum roaches, some of them will suffocate in the bag. To ensure all roaches are destroyed, the vacuum bag should be immersed in soapy water or placed in a sealed plastic bag or container which is then placed in the freezer for at least 24 hours.

Sealing Hiding Spots and Entry Points

- ▶ Block, seal or caulk cracks and crevices around foundations and access points to wall cavities. These are important steps in limiting infestation, movement and re-infestation by the pest.
- ▶ Look for sealable access points around baseboards, air vents, sinks, bathtubs, and other areas where pipes, plumbing and electrical wires enter the premises.
- ▶ Fill floor drain and condensation line traps with water to prevent migration from sewers. Cap abandoned drain lines.
- ▶ Weatherstrip beneath doors and around windows especially in apartments where cockroaches migrate readily from one unit to the next. Be sure to caulk around the edge of the screen to make a tight barrier.

Steam Cleaning and Freezing

If furniture, toys or crafts are suspected of harbouring roaches you may steam clean them if you have ensured that the material will not be damaged by the moisture or heat. You can also freeze the infested items for at least 24 hours at -8°C (17.6°F).



Chemical Control

The most common approach is the application of a residual crack and crevice product registered for the control of cockroaches. Retreatment after a few weeks will kill emerging nymphs. However, when retreating your dwelling, use a different product in order to avoid having the insects develop a resistance to any particular product. Never treat entire surface areas unless specified on the label.

Roaches shun the light, prefer tight fitting spaces, and seldom venture into the open. Concentrate your control efforts on cracks, crevices, joints, seams, corners, frames, baseboards and spaces where they can hide.

Treat those areas where insects may forage at night; avoid treating surfaces where roaches are unlikely to travel. Key locations include kitchens, bathrooms, storage areas, basements, areas around plumbing and drainage pipes, and garbage storage areas. Surfaces to be treated should be clean and dry so that the control product will adhere to them properly.

Various products can be purchased at garden centres and hardware stores or are available to exterminators for the control of roaches. These products contain, among others, active ingredients such as: chlorpyrifos, bendiocarb, carbaryl diazinon, malathion, etc. If insect populations are high, pyrethrin aerosols or space sprays can increase effectiveness of the treatment by knocking down the insects and flushing them onto treated surfaces. The following active ingredients are among the least toxic chemicals available for cockroach control.

Hydramethylnon Bait Stations

Maxforce or Impact bait stations contain the active ingredient hydramethylnon, an insecticide of low mammalian toxicity available in tamper-proof